

PLASMA IMMERSION ION IMPLANTATION APPARATUS AND METHOD

ABSTRACT OF THE DISCLOSURE

A plasma immersion ion implant apparatus and method, and a plasma chamber, each configured to provide a uniform ion flux and to dissipate the effects of secondary electrons are disclosed. The invention includes a plasma chamber including a dielectric tophat configuration and a conductive top section that may be liquid cooled. In addition, the invention provides a radio frequency (RF) antenna configuration including an active antenna that is coupled to an RF source and a parasitic antenna that is not directly coupled to any RF source, but may be grounded. The RF antenna allows for tuning of the RF coupling.